City of Naga, Camarines Sur
COMPREHENSIVE LAND USE PLAN, 2016-30

EXECUTIVE SUMMARY

• VISION

'Naga, An Maogmang Lugar'

By 2030, Naga City shall be a recognized model of

- People-centered development, anchored on quality and accessible services in health, education and other social services, especially for the vulnerable; that enables the private sector to generate the best value from local talents, technology and resources, and provide gainful jobs and entrepreneurial opportunities for the Nagueño;

- Good governance and responsible citizenship, driven by a shared development direction crafted, implemented and continually improved in an inclusive manner; and sustained by a citizenry that asserts their rights and accepts their roles and responsibilities in nation building; and

- Abiding faith that expresses itself in social solidarity and a culture of excellence flourishing in a city that is peaceful, safe, resilient and in accord with nature; where cultural values are nurtured and religious diversity respected; and where technology enables the Nagueño to be part of a global community of people and nations.

In the process, it shall set the pace in participatory urban development in the Philippines and in Southeast Asia, and inspire others in their own path to development.

• BRIEF SITUATIONER

Physical Profile

Geographic location. Naga City is centrally located in the province of Camarines Sur, about 377 kms south of Manila and 100 kms north of Legazpi City, Albay. Nestled at the foot of Mt. Isarog, the city has a total land area of 8,448 hectares or 84.46 sq kms.

On the Philippine Map, it is placed between 13 to 14° North Latitude and between 123 to 124° East Longitude. It is bounded on the North by the towns of Canaman, Magarao and Calabanga; on the East by Mt. Isarog; on the South, by Milaor and the capital town of Pili; and on the West by the town of Camaligan.

Topography. The city's terrain generally slopes upward from west to east. Its city center, trisected by the Bicol and Naga rivers which are fed by creeks and riverines that crisscross the city, is located near its lowest point, making it susceptible to flooding when unusually heavy rainfall causes these waterways to overflow.

Slope. The low flatlands from the city center up to the upper barangays of Pacol and San Isidro at foot of Mt. Isarog have slopes of 0-3% (almost level) to 3-8% (nearly level to slightly sloping). Collectively, they account for 58% of the total land area.

On the other hand, the eastern part covering barangay Carolina has slopes of 8-18% while Panicuason, which includes the Forest and Parks Reserve of Mt. Isarog that forms part of the National Integrated Protected Areas System (NIPAS), has the steepest from 18-30% or more.

Impacts of climate change and hazards

Naga's geographic location, as well as the impact of climate change to the Philippines which is one of the world's most disaster-prone countries, further elevates risks arising from natural hazards that affect the city. These hazards include the following:

Typhoons. Climate change will bring about more intense typhoons. Three of the 16 strongest typhoons over the last 70 years devastated Naga in a span of roughly a decade (2006-16), packing maximum winds of at least 215 kph. One of them ("Glenda" or Rammasun in July 2014) hit the city outside the usual typhoon season, an event that happened only seven times during the period.

Flooding. The major hydro-meteorological hazard facing the city is rain-induced flooding events that put the city's main urban areas at risk, owing to its location at the outlet of the Naga River watershed.

The flood susceptibility map prepared by the Mines and Geosciences Bureau puts 97 hectares (at the junction of the Naga and Bicol rivers) as highly susceptible to flooding, representing 7% of the 1,492-hectare urban district. In all, more than half (55%) of the urban district is susceptible to flooding. The Naga City Local Climate Change Action Plan (LCCAP) places this at an even higher 61%.

Over the next 15 years, flooding events are expected to worsen due to climate change. Using climate modeling tools, a precipitation anomaly map prepared by the Manila Observatory shows that by 2025, even with modest efforts at climate change adaptation, rainfall is expected to increase by an average of 5-6% within the urban district, by 4-5% in the peri-urban areas, and 3-4% in uplands. During rainy season, it is projected to increase by as much as 10-11% in the urban district. The LCCAP agrees, projecting the highest rainfall increase at 9.5% during the rainy months of June, July and August by 2020 and by 16.5% by 2050.

Other climate and geophysical hazards. Lastly, the city also needs to consider three other geophysical hazards that can impact development.

One is ***rising temperature and drought***, especially in the peri-urban and upland agricultural areas. From a baseline historical mean temperature of 26.7 ºC for the period 1971-2000, a temperature anomaly map prepared by the Manila Observatory shows that by 2025, under the same climate change adaptation scenario, temperature in Naga will increase by 0.6 ºC, raising average temperature to 27.3 ºC. During the dry season, the increase can reach as much as 1.2 ºC, raising average temperature to 27.9 ºC. More worrisome is the LCCAP projection, which sees a 2.2 ºC increase by 2050.

Another is ***landslides***, which are confined to the Mt. Isarog protected area in Barangay Panicuason and its environs. The MGB landslide susceptibility map identified around 481 hectares (68%) as moderately susceptible and another 226 hectares (32%), located at the peak and two radiating gullies of Mt. Isarog, as highly susceptible to landslides. Fortunately, they do not affect existing built-up areas and developments in said barangay.

The other would include ***seismic hazards*** that can bring about ground shaking, rupture and/or liquefaction. While the nearest active fault, located across Ragay Gulf, is around 70 kms away from Naga, it triggered a magnitude 7.0 earthquake on March 17, 1973 that wrought the most damage to Calauag, Quezon. Said earthquake caused intensity 4 ground shaking in Naga and as far as Legazpi City. A similar disaster will put at risk around 14% of the city's old housing stock that were built before 1980, when there was weak enforcement of building standards. Also at risk would be old buildings, especially at the urban district, that might be damaged in such an event.

Demography

Population count and trends. The 2015 Census by the Philippine Statistics Authority (PSA) puts Naga's population at 196,003. This is an increase of 21,072 inhabitants over the 2010 total of 174,931, making Naga the fastest growing city in Bicol. This translates to a 2.3% annual growth rate, lower than the 2.91% registered between 2007 and 2010. Of the total, 49% are male while 51% are female. The latter's share has been steadily growing: in 1995, there were only 95 females for every 100 males; in 2010, there were already 104 for every 100.

In 2015, the city's household population reached 42,152, higher by 6,223 compared to the 35,929 recorded in 2010, yielding an average household size of 4.61, lower than the 4.84 five years back. By comparison, there were 5.20 persons per household in 2000.

By 2030, the city's population is projected to hover between a low of 256,028 to a high of 301,300. If the current 2.3% growth rate is maintained, Naga's population will reach 273,715 by 2030.

Age-sex structure. Naga is a city of young people. Children and the youth (those aged 24 and below) comprise more than half (54%) of the total. More than a quarter (29%) is of school age, with preschoolers accounting for 4%, elementary 12% and secondary 13% of the total. While males make up 52% of the total school-age population in the lower years, the situation is equalized at the secondary level with males and females each getting 50%.

Population density. Based on PSA standards, Naga is 100% urban. At 2,320 residents per sq km as of 2015, up from 1,631 per sq km 15 years ago, it remains the most densely populated city in Bicol using a land area of 84.48 sq kms as base.

Migration. In 1990, 39% of the city's population were considered migrants. In the 2007 Ateneo SSRC survey, 43% of city residents are born in Naga, 38% are from Camarines Sur, 9% are from other Bikol provinces, and 11% from outside Bikol. Their average length of stay in Naga is 28 years.

Results of the 2014 ASSRC survey say that 16.3% of the city's household population have a family member abroad. The same survey said that 61.8% of these international migrants are female while 38.2% are male. Moreover, two of every three (67.6%) are Overseas Filipino

Workers (OFWs) working abroad, while 32.3% have permanently migrated or Overseas Filipinos (OFs).

Poverty incidence. According to PSA estimates, the official figures used by government, poverty incidence in Naga reached 15.7% in 2012, an improvement over the 16.6% registered in 2006 and the 24.4% in 2009.

To more fully capture the extent of poverty, two other data sets are used. One is the self-rated poverty data generated through the annual Poverty and Governance Public Opinion Poll conducted by the Ateneo de Naga Social Science Research Center. Over the last few years, there has been a significant downtrend in the number of people saying they are poor: from a high of 62% in 2007, it went down to 48% in 2013, 42% in 2014 and 43.5% in 2015. The other source are official data generated through the Community Based Monitoring System (CBMS), a survey conducted by the city government every three years. In 2015, the CBMS identified a total of 10,872 households (33.4%) as income poor.

Social Services

Education. As a center of education in Bicol, Naga offers quality education from preschool to graduate courses. In 2016, its educational institutions, including city and barangay-operated SEED Montessori and Educare centers which provide preschool training, totaled 283. Of these, 162 are public and 121 private. The figure is 56% higher than the 2009 level, driven by both the private sector which grew by 75% and the public sector which grew by 45%.

Health. As of 2016, Naga is home to a total of eight hospitals and infirmary, three of which are government-owned with the rest private. The five private hospitals have a combined 365 beds. Together with the government hospitals' 544, it brings Naga's total number of hospital beds to 909. This translates to a bed-to-population ratio of 1:4,617, lower than to the standard ratio of 1:2,000.

The number of physicians and dentists reached 302 and 76, respectively, which translate to a ratio of 1.5 physicians per 1,000 and 0.4 dentist per 1,000 population. Against the standard of 1 physician and 1 dentist per 20,000 population, Naga has more than enough physicians to serve its residents.

Housing. Based on the 2010 Census, there were 35,210 housing units in the city, 37% higher than the 25,674 recorded in 2000. At an annual average increase of 3.7%, house construction grew at a faster clip than the city's population growth. Of these 77% were single houses, 13% were multi-unit residences (apartments, rowhouses, condominiums, townhouses), 9% duplex-type, and the remaining 1% were institutional living quarters, other housing units, and commercial, industrial and agricultural buildings being used for dwelling. Compared to the previous survey, there was a marked shift towards multi-unit and duplex-type residences (each increasing by 3 percentage points) over the last 10 years.

Most of the new housing stock in the city completed over the last 14 years were built in the 52 subdivisions with a combined area of 320.39 hectares that were issued development permits by the City Government since 2000.

To address the needs of Naga's urban poor, the city government has been implementing the Naga Kaantabay sa Kauswagan (KsK) program which focuses on helping urban poor

communities obtain security of tenure either by helping them acquire their homelots on-site or providing new ones in off-site relocation sites. Twenty-six years after its launching in 1989, KsK program beneficiaries have reached 9,191 in 2015 (representing 23% of the 40,535 estimated household population), more than twice the 4,000 households originally targeted for coverage.

Protective. The Naga City Police Office (NCPO) handles the daily peace and order situation of the city, with its manpower complement of 359 in 2013 increasing by 65% compared to four years back. Protective services in Naga is further enhanced by the presence of 50 police aides and 26 volunteers hired by the city government through the Public Safety Office (PSO), as well as 24 private security agencies.

On the other hand, fire protection services in Naga are provided mainly by the local branch of the Bureau of Fire Protection (BFP). As of 2013, the local firefighting force is composed of 86 personnel, 20% smaller than the 108 it had four years back. The BFP unit is nonetheless complemented by around 100 volunteers from the Progressive Mason Club (Chin Po Tong) Fire Brigade and Naga White.

The Naga City District Jail (NCDJ) located in barangay Del Rosario houses all inmates of MTC and RTC and detainees/prisoners in the third and fourth districts of the province. As of 2016, there were 493, 87% more than the 263 inmates it housed in 2009.

Economy

Structure. According to the 2000 ADB Cities Databook, Naga has a primarily trading and service-driven economy. “The service sector employs the bulk of the city’s labor force, accounting for 71% of the total. The secondary and infrastructure sector (manufacturing, utilities and construction at 14%) and others (agriculture and government at 15%) account for the rest.”

With the entry of business process outsource (BPO) companies and the country’s two leading mall operators, especially over the last 10 years, the share of the service sector has grown larger at the expense of agriculture and manufacturing. Using local revenues derived from economic activities as proxy indicator, the primary sector of the local economy (built around agriculture) accounted for 8% of the total, the secondary sector (built around manufacturing, utilities and construction) accounts for 3%, while the tertiary sector (built around services) accounts for 89% of the total in 2016.

Trade, commerce and services. As of December 2013, Naga City has a total of 7,468 business establishments (1,079 new, 6,389 renewals). This is 86% higher than the 4,025 firms registered in 2000 (889 new, 3,136 renewals). The business registry of the Metro Naga Chamber of Commerce and Industry (MNCCI) however shows that the local economy is more robust than what official figures show. In 2015, the city had a total of 16,202 micro, small and medium enterprises (MSMEs). Of the total, 8,806 (54%) were registered enterprises while 7,396 (46%) were unregistered and belonged to the informal sector. This is six percentage points higher than the 40% recorded in 2007, indicating a thriving and growing underground economy.

In terms of economic activity, retail (46%) and services (20%) are the predominant type of businesses, affirming the ADB figure. Others include real estate and leasing (9%); agribusiness (7%); financial intermediation (4%); transportation, storage and communications (4%); health

and social work (3%); hotels and restaurant (2%); fishing, construction, manufacturing and education (1% each).

Agriculture. In terms of land use, Naga remains an agricultural city. Of the city's total land area of 8,448 hectares, 4,550 (54%) were allocated to agriculture in 2000. But data from the City Agriculture Office (CAgO) shows that in 2014, only 3,198 hectares (70% of the total) were actually being used for agricultural production. Of these, 1,847 hectares are planted with rice, 1,139 hectares with corn, 15 with vegetables while 198 were used for livestock and poultry.

Manufacturing. Naga has a relatively small industrial base. As pointed out above, the city's manufacturing sub-sector accounts for only 7.4% of the total economic activity, about five percentage points lower than the 12.5% in 2009 and the 14% in 2000. While a handful of specialized manufacturing activities such as bottling (Pepsi and Coca Cola), chicken dressing and cooking oil processing exist, most other firms are engaged in small to cottage-scale food processing, metalworks, furniture manufacturing, jeepney bodybuilding, auto shops, warehousing and storage that fall under one of 17 key industry classifications in the city.

Property development. Another key driver of economic growth in the city is its vibrant construction and property development subsector. Between 2010 and 2014, building construction grew by an annual average of 14% in terms of volume (from 95 to 128), and by 8% in terms of project cost (from P601.7 million to P775.9 million).

A total of 22 new subdivision permits were also issued during the period, an average of 4 to 5 new projects with a combined project cost of P283.2 million every year. Combined, the subsector accounts for 71% of new investments infused into the local economy, down from 79% during the preceding period.

Tourism. The local tourism industry in Naga continues to grow, especially with the disaggregation of data being pushed by the Department of Tourism. For 2014, a total of 976,822 tourists visited the city, 13% higher than the 859,743 recorded the year before. The number also represents 50% of the 1,861,010 tourists that visited Camarines Sur and 26% of the 3,724,073 tourists that went to Bicol for the year.

The city's accommodation facilities continued to increase substantially over the last 15 years, from only 22 hotels, lodging and pension houses and resorts in 2000 to 63 as of 2014, a 186% increase. In terms of combined room capacity, the expansion is more pronounced, reaching 1,924 in 2014 – an increase of 249% over the 551 rooms in 2000. Notwithstanding the increased capacity, occupancy rates also increased by 7.5 percentage points from 49.8% to 57.2% during the same period.

Physical Infrastructure

Roads and bridges. As of December 2015, Naga's road network has expanded to 195.7 kms, 31.4 more than the 164.3 kms recorded in 2000 – an increase of 19%. Of these roads, a total of 31.8 kms (16%) were built by the national government. In terms of road type, 145.2 kms (or 74% of the total) are concreted; 30.4 kms (16%) are asphalted; 14.1 kms (7%) are gravel surfaced; while 6.0 kms (3%) are still earth road. Over the last 15 years, the share of asphalt-overlain roads showed the biggest increase, from 10 to 16% of the total, while concrete roads went down by 6 percentage points from 80 to 74%.

The number however does not include around 50 kms in private subdivision roads still to be turned over the city government. When these are considered, Naga would have a total road network of around 246 kms as of 2015.

Within the city, there are 13 city bridges, each with a 10-ton capacity, and six national bridges. Most of these bridges are found in the city center which is trisected by the Bicol and Naga Rivers. Over the last 15 years, three new bridges were added, two by the city and one by the national government.

Land transport. In 2013, Naga's public transportation system is mainly provided by around 8,587 units, an increase of 71% over the 2010 figure of 5,007. It is broken down into:

- 1,304 aircon and non-airconditioned buses that ply inter-provincial and inter-regional routes (15%)
- 693 Filcab and UV Express vans that cover intra- and inter-provincial routes (8%)
- 2,467 public utility jeepneys (PUJs) that cover intra-city and provincial routes (29%)
- 554 trucks for hire (6%)
- 27 school and 30 tourist transport service vehicles (1%)
- 85 taxi units (1%)
- 1,500 trimobiles serving intra-city routes (17%), and
- 2 units of calesa and 1,925 units of pedicabs (22%).

As of 2015, the total number of registered vehicles in Naga reached 35,044 units, 4% higher than the 33,761 registered in 2010. Of these, 30,856 (88%) are private, 3,729 (11%) are public utility, and 459 (1%) are government-owned vehicles. In 2010, the ratio is 93% private, 6% public, and 1% government. In terms of vehicle type, motorcycles continue to dominate city roads, accounting for 52-59% or almost 3 of every 5 registered in the city. Utility vehicles, which are mostly jeepneys, comprise the next biggest group at 21-25%, followed by cars and SUVs at 9-11%, trucks and buses at 4-5%, and trimobiles at 6-11%.

Air transport. By plane, Naga is about 45-55 minutes away from Metro Manila via Naga Airport which is located in the capital town of Pili, Camarines Sur some 12 kilometers from the city proper. PAL Express and Cebu Pacific field regular morning and afternoon flights to and from the national capital. Every week, around 35 flights serve the Naga-Manila route which allows greater flexibility to connect with other national and international destinations. Legazpi Airport, which is about two hours away from Naga, can also be utilized in going to Manila or Cebu.

Rail and water transport. Operations of the Manila-Bicol run of the Philippine National Railways (PNR) have been on and off. Efforts to resume operations between Manila and Naga were constrained by accidents, destruction of key segments in the railroad system during strong typhoons, and pilferage of railroad track materials. The Department of Transportation (DOTr) conducted an audit to determine the safety and reliability of the system before resuming operations. As a result, the Bicol commuter service was launched in 2009, between Tagkawayan, Sipocot, Naga and Legazpi. But after further service reductions, only the service between Naga and Sipocot was operational by 2013. In October 2015, service resumed between Naga and Legazpi, but the devastation of Typhoon 'Nina' again cut it short.

The advent and popularity of land transport has eliminated water transport services between Naga and its neighboring towns, reaching as far as Libmanan. The establishment of wharves

along Naga River was pursued by the city government to jumpstart water transport services within the urban center in the context of its Integrated Naga River Revitalization Project.

Communication. Globe (which has recently acquired Bayantel) and PLDT (formerly Digitel) are the two major telecommunication companies that provide basic and advanced fixed-line telecommunication services in the city. In 2011, their combined subscriber base of almost 11,500 subscribers has pushed the city's fixed line telephone density to one for every three households. The entry of the wireless telecommunication companies, now reduced to a duopoly between Smart and Globe, has accelerated growth of the local telecommunication industry. The 2007 Ateneo SSRC research shows that Nagueños have greater access to cellular service than landline, with every household owning two to three mobile phones on the average, some even have dual-sim cellphone units.

Internet access has also been increasing, powered by more accessible and affordable broadband services being offered by PLDT-Smart and Globe-Bayantel, as well as bundled offerings by local cable TV operators Skycable and Caceres Cable. The 2010 Census reflects this, showing that around 34% of the city's household population have internet access, with 17% accessing it from their home and the other 17% accessing it elsewhere.

The broadcast media in Naga continued to grow over the decade. These are being provided by around 20 AM and FM radio stations, and five local television stations. Also, two local cable TV companies provide up-to-date news, relevant information and entertainment to Nagueños. National dailies and local weekly newspapers are also available in the city.

Postal services are being provided by the Philippine Postal Corporation (PhilPost) with 24 staff and personnel for 2013. It also operates a mailing station located at the SM City and UNC Compound. Complementing it are seven messengerial companies. However, the advent of internet-based technologies and social networking sites like Gmail, Hotmail, Google, MSN, Skype, Facebook and Twitter has affected these traditional communication services.

Waterworks. The waterworks system run by the Metro Naga Water District (MNWD) supplies the requirements of Naga and the four neighboring towns of Canaman, Camaligan, Gainza and Magarao. Its main water source comes from three springs located in Pili, Camarines Sur – the Anayan, Kalinisan and Rumangrap springs – and 18 operational deep well pumping stations located in strategic sites within its service area.

As of 2013, the MNWD water system has a total of 40,248 active connections, which is continuously growing at the rate of 157 average new connections per month. It is 23% higher than the 2010 level of 32,769, or an average annual growth of 8%. This is more than three times faster than the city's population growth over the same period. Average water consumption of domestic, commercial, industrial and government users reached 15.4 million cubic meters. With the approval of its proposed environmental service charge, the MNWD is expected to offer septage treatment services by around 2018 on top of basic potable water provision, anchored on a treatment facility located in Sitio Caromatig in Barangay Carolina that is capable of handling 56 cu. meters of sludge per day.

Power. Electric power services in the city is being provided by the Camarines Sur II Electric Cooperative (CASURECO II), one of the four electric cooperatives engaged in power retail in the province, and the second biggest in the Bicol region in terms of market size. Power is sourced mainly from newly privatized generating plants connected to the Luzon Grid being

operated by the National Grid Corporation of the Philippines (NGCP). Data from the National Electrification Administration (NEA) show that as of December 31, 2016, CASURECO II has achieved 100% energization of all barangays (259), 83% of all sitios (341 of 409), and 97% of all potential households (117,538 of 120,900) within its coverage area. In Naga, which accounts for around 65% of its market, it has energized all 27 city barangays.

Environment

Naga River watershed. Naga River's watershed area is estimated at 5,445 hectares (representing 64% of its land area), part of which extends beyond the city's territorial boundary. The watershed appears like an elongated leaf with a pointed tip, lying down along the east-west axis; with its outlet oriented almost due west and its tip oriented almost due east. Its widest portion is located approximately one-third of its total length reckoned from its lowest portion (mouth of the river).

Biodiversity area. Mt. Isarog National Park (MINP) is the main locus of biodiversity in Naga City. The park has a total of 10,112 hectares and cover, aside from the city, its neighboring towns of Pili, Ocampo, Tigaon, Goa, Tinambac and Calabanga. The national park was established pursuant to National Park Presidential Proclamation 293 issued in 1938, and enhanced under Natural Park Presidential Proclamation 214 issued in 2002.

An incredible number of plants grow in the MINP. It is a habitat for some 3,000 species of flora, which include dipterocarps, epiphytes, rattans, ground ferns, lianas and herbs. In higher elevation, pitcher plants, palms, mosses and liverworts are abundant. On the other hand, there are 48 types of mammals found in the national park, 15 of which are said to be rare. Of these, 6 are said to be endemic species to Mt. Isarog, including velvet-fronted nuthatch, Isarog blind snake, Mt. Isarog shrew mouse, Isarog striped-shrew mouse, the rare Mount Isarog Forest Skink, and Isarog shrew rat. In addition, the Isarog Cloud Frog was first described by scientists in 1997. In all, scientists have identified possibly three new frog species, 8 species of snakes, and 19 species of lizards.

Solid waste management. In 2016, the city generated 108,019 cu. meters of solid waste. Out of this, 35,641 cu. meters were diverted, representing a 33% waste diversion effort. Of the waste diverted, 62% takes place at the community level, with the remaining 38% processed at the Materials Recovery Facility (MRF) of the Balatas controlled dumpsite. As a result, the facility accepted only 72,378 cu. meters for the year. Expected to take the place of the 55-year old Balatas facility is a 10-hectare sanitary landfill (SLF) in Barangay San Isidro that will double as a waste-to-energy (WtE) facility. It is targeted to open in 2018 as the Balatas dumpsite reaches its full capacity.

Air quality. As a pilot Airshed Area in the Bicol Region, weekly air quality monitoring through Hi-volume Sampling were made at Concepcion Pequeña, Magsaysay, and Panganiban crossing beside PNP Substation-1 to measure particulates that go with the air. Since measurements were first taken in 2000, the city's air quality reading has been shifting between Fair and Good rating. In 2014, air quality reading improved by 40% compared to the last two years, from 120 to 72 microgram per cubic meter (μg/m³), equivalent to a Good mark. This mirrored a similar improvement in 2008 and 2011 which saw the city's air quality rating bounce back from a two-year decline from Good to Fair.

Water quality. At present, the current environmental situation of the Naga River remains challenging. Along the urban center, it is classified as Class C, based on intended Water Use Stream Classification Scheme of the Philippine government. The river's identification as Water Quality Management Area (WQMA) by the DENR is a good step to address this challenge. According to the 2014-15 water analysis, only half of the 22 sampling stations met the minimum of 5 for dissolved oxygen. Nonetheless, 18 of the 22 met the 10 mg/L threshold for Biological Oxygen Demand (BOD). More worrisome is that all stations registered very high levels of coliform bacteria, way above the 5000 most probable number (MPN)/100mL threshold. This qualifies its waters for irrigation of agricultural crops, the propagation and growth of fish and other aquatic resources; boating for recreation; and industrial water supply for manufacturing processes after treatment.

Greenhouse gas emission. Total emissions of Naga City, including the land use change and forestry (LUCF) sector, amounted to 246,640.13 tons. The Energy and Transportation sectors contributed almost the same amount in the total emissions at 36% (equivalent to 89,760 tons) and 35%, (86,776 tons) respectively; combined, they account for 71% of the total GHG emissions. Coming at third was the Waste sector with an emission of 46,288 tons of CO2 (19%) of the total, and Agriculture sector, which contributed 21,633 tons (9%). Finally, with a comparatively small area allotted to crop production and few livestock, the LUCF sector contributed only 2,183 tons (1%) of the total. Considering the amount of carbon absorbed by the LUCF sector of Naga City (9,502 tons), which is very small to offset carbon emissions, the city's net carbon emission stood at 237,137 tons. This translates to a 1.4 ton per capita emission of CO2 equivalent, which is almost double than the World Bank standard value of 0.7.

Heritage Conservation

Heritage district. Building on the Bongat administration's thrust to enhance awareness of local cultural heritage, the Nueva Caceres Heritage Movement, Inc. (NCHMI) proposed to establish the Ciudad de Nueva Caceres heritage district in the city center through a resolution adopted on February 18, 2016. The district largely encompasses the Central Business District I and is bounded by Ateneo Avenue to the north, Igualdad (now J. Hernandez Avenue) to the west and Naga River to the east and south.

Historical sites. Spread across the district are 27 historical sites, 10 of which are still existing. These are:

- Escuela Normal (now Universidad de Sta. Isabel)
- Seminario (Holy Rosario Minor Seminary)
- Catedral (Naga City Metropolitan Cathedral)
- Palacio (Archbishop's Palace)
- Administracion del Correo (the Philamlife property hosting the old Post Office building)
- Bishop Barlin Monument
- Cuartel de la Guardia Civil (Naga City Police headquarters)
- Plaza de San Francisco (Plaza Quince Martires)
- Iglesia de San Francisco (San Francisco Church)
- Plaza Alfonso XIII (Plaza Rizal)
- Abella Building and Fuente de Claveria (Tabuco Bridge).

On the other hand, the 17 historical sites that no longer exist are:

- Ruina de la Catedral,

- the old Episcopal Palace and the old Cemetery (which are located in what is now the Naga City People's Mall)
- Plaza del Fuente (Plaza Oragon)
- Casa de Clerigos (the original site of the seminary is what is now the Benito Commercial building)
- Mercado (Aristocrat Hotel up to Regent Hotel)
- Casa del Escribano (where the UCPB, BPI Family Savings Bank and former New England Restaurant now stand)
- Tribunal (former Naga City Library building)
- Casa del Gobernador and Carcel de la Provincia (LBRDC, BDO and PNB buildings)
- Casino Español (McDonald's and Bigg's Diner, in front of Quince Martires)
- Hospital Medalla Milagrosa (Barlin Satellite Market)
- Escuela Comun (Grageda Apartment), and
- Imprenta (current Philamlife Building).

Green growth and transit-oriented development

The proposed new alignment of the PNR line in Naga City under the PNR South Long Haul project involves the abandonment of its existing line and the construction of a new one, including a new Naga City terminal. With the ongoing construction of the P480-million Almeda-Mabulo Bypass road by the DPWH, the city shall implement a transit-oriented development (TOD) strategy built around this new terminal and its proximity to the new bypass road, which will provide for non-motorized transport (NMT) facilities, especially protected bicycle and pedestrian lanes. The bypass road will not only connect Almeda Highway to the Maharlika Highway in Barangay Mabulo, but will also provide an alternate access to the planned Bicol River Esplanade and the 2.3-hectare People's Park and Recreation Center (PPRC). This connection will ensure that the southern CBD 2 will be ringed by NMT facilities, making it ideal to anchor the city's TOD strategy.

Guided by the vision of sustaining Naga as "Maogmang Lugar," the city also seeks to implement a "sponge city" urban water management strategy, based on the following five pillars of green growth: (1) Liveable Communities, (2) Employment Opportunities, (3) Sustainable Development, (4) People and Community Empowerment, and (4) Heritage and natural assets conservation. As such, this strategy will be anchored on the following key projects:

- Bicol River esplanade, PPRC and mixed-use river front development built around a floodable park
- Strategic city road network development, anchored on the TOD scheme described above
- Socialized low-rise housing projects that will provide accessible housing supply for shorter work-to-home trips for the labor force, and
- Development of (a) urban mini-forests (Forests in our Midst or FOM project) in the urban areas; and (b) mangrove rivers and cascading retention ponds in the peri-urban areas of Naga.

Land Use Development Trends

Since its inception as a chartered Philippine city in 1948, Naga has only had two approved land use plans.

1978 Town Plan. First is the 1978 Town Plan adopted by the city government under the Pamayanang Pilipino program of the then Ministry of Human Settlements. The program helped

major urban and urbanizing centers like Naga prepare town plans that sought to facilitate and implement the country's development projects during the Marcos regime. The plan had the following features:

- Land use development shall follow a radial circumferential pattern as much as possible.
- Prime agricultural lands shall be devoted to agriculture as much as possible.
- Dump sites shall be located as far as possible from built-up areas.
- Urban developments shall be located away from identified critical zones such as fault zones, flood-prone areas, dams and other man-made hazards.
- The town plan and zoning ordinance shall be reviewed at least once every five years.

2000 Comprehensive Land Use Plan. After an earlier effort in 1994 to update Naga's land use plan failed, the city government finally succeeded in updating said planning document by the turn of the century. The 2000 CLUP adopted the following strategies:

- Proximity of residential areas to places of work
- Only light industrial activities which are non-hazardous and less pollutive shall be allowed in the city
- Distribution of community services along a hierarchical arrangement
- Preservation of prime and highly productive agricultural lands and forest areas
- Compact urban development
- Expansion of commercial and light industrial areas, and
- Recovery of easements.

To implement these strategies, the table below shows that the city expanded commercial areas from 2% to 4% (161 to 341 hectares), residential from 14% to 22% (1,208 to 1,886 hectares), and industrial from 0.4% to 2.5% (32 to 214 hectares). Institutional areas also increased from 1.8% to 2.2% (150 to 183 hectares). These increases came at the expense of agricultural areas, which dropped by 26 percentage points (from 68% to only 42%).

Changing Land Use in Naga City, 1978-2000

CLASSIFICATION	2000 LAND USE PLAN		1999 ACTUAL LAND USE		1978 TOWN PLAN	
	Area	%	Area	%	Area	%
Residential	1,886.28	22.33	1,208.42	14.30	734.98	8.70
Commercial	340.72	4.03	161.13	1.91	16.90	0.20
Agricultural	3,553.23	42.06	5,709.05	67.59	5,854.46	69.30
Industrial	214.00	2.53	32.20	0.38	8.45	0.10
Institutional	182.47	2.16	150.29	1.78	50.69	0.60
Forest reserves	611.14	7.24	611.14	7.23	481.54	5.70
Parks	9.95	0.12	2.49	0.03	16.90	0.20
Transportation utilities	24.45	0.29	4.47	0.05	337.92	4.00
Dumpsite	5.89	0.07	3.55	0.04		
Cemeteries	33.95	0.40	17.11	0.20		
Water bodies	43.72	0.52	43.72	0.52		
Idle lands/Grasslands/ Marginal agricultural lands			504.43	5.97	946.18	11.20
Agri-industrial	346.43	4.10				
Agro-ecotourism	1,195.66	14.15				
T O T A L	8,448.00	100.00	8,448.00	100.00	8,448.00	100.00

Actual use as of 2015. In a workshop facilitated by the Manila Observatory using a satellite image of the city taken on December 25, 2015, an inter-agency team identified unplanned developments in Naga over the last 15 years.

In sum, it shows that unplanned development affected around 403 hectares, representing 5% of the city's land area and 35% of the 1,143 hectares net urban expansion incorporated in the 2000 CLUP. The bulk of unplanned developments took place in residential (263 hectares or 65% of the total), agri-industrial (75 hectares or 19%), and agricultural (49 hectares or 12%). In terms of actual use, 308 hectares (76% of unplanned, or more accurately, unrealized developments) were agricultural use of other classes, mostly residential, while 76 hectares (19%) involved residential use of other classes, particularly agricultural and agri-industrial. This points to unplanned developments being skewed in two directions: one, planned residential developments, located mostly in the upland areas, that did not materialize and remained largely agricultural; and two, planned agricultural/agri-industrial developments, located in the urban fringe, that actually became residential development.

• DEVELOPMENT CONSTRAINTS

After undertaking a multi-level analysis, the table below summarizes the major land-related development constraints facing Naga that need to be addressed under the plan:

Development Constraints facing Naga City

Land Use-Related Problems	Extent of the Problem	Interventions Needed
1. Urban sprawl	Current urban form actually promoted sprawl with identification of residential areas far away from the city center	• Prioritize residential development near the city center in the new CLUP's land use allocation • Automatic reversion of idle residential lands when unused after five years
2. Conversion of prime agricultural lands	Premature conversion of prime agricultural lands makes "white elephants" or idle lands out of it. It also diminishes productivity of the agriculture sector	• CLUP 2016-30 and Zoning Ordinance provisions protecting prime agricultural areas • Increase agricultural income and profitability • Automatic reversion of idle lands when unused after five years • Political will and enabling legislations • Stiffer reclassification fee
3. Climate, meteo-hydrological and geo-physical hazards		
a. Weather-related hazards	Naga lies in the usual path of strong typhoons. Between 5-6 of these pass by Bicol every year. Climate change is expected to bring more intense typhoons At the same time, average temperature can rise between 0.6 to 1.2 ºC at the peri-urban and upland areas	• Pursue safer, typhoon-resistant housing designs, e.g. Nexus demonstration unit • Use CBMS data in targeting KsK beneficiaries for shelter assistance, i.e. those with makeshift housing which are most vulnerable • Continuing reforestation of and around Mt. Isarog • Provision of a forest buffer around the MINP

	by 2025, to as high as 2.2 ºC by 2050.	• More responsive regreening program in the urban and peri-urban areas of the city
b. Flooding	More than half of the city's urban district are susceptible to flooding events. Climate change is expected to magnify risks from this hazard	• Continuing reforestation of Mt. Isarog • Limit land conversion • Declogging of rivers, waterways, canals • Progressive expansion of storm drainage system, especially towards Bicol River • Identify and designate strategically located flood catchment areas and parks around the urban district • Strictly implement mandated buffer zones for rivers and key waterways • Implement KsK projects in safer areas away from high-risk zones
c. Seismic hazards	Ragay Fault is around 70 kms away. Around 14% of city's housing stock is more than 30 years old. Half of public school buildings need detailed review by design experts	• Rapid visual appraisal of all buildings, especially at CBD and urban district, by local building office • Detailed review by experts of priority buildings identified • Retrofitting of old building at risk when necessary
4. Transportation	Worsening congestion during peak hours. Lack of quality public transportation options that can encourage private car owners to shift. Underdeveloped infrastructure, policy support for non-motorized transportation (NMT) options. Efficiency of primary roads constrained by width, on-street parking. Underdeveloped circumferential road network	• Widen primary roads. Strictly implement ban on on-street parking on primary roads. • Eliminate unlimited free parking policy within CBD to incentivize parking business, discourage unnecessary trips • Open up airconditioned BRT Lite service along Maharlika Highway between Del Rosario and CBD I • Fully develop C-2 and C-3 circumferential roads, and a new access road to Pacol • Establish a truck terminal and strictly enforce ban on truck parking in primary and secondary roads • Adopt pedestrianization policies for CBD and promotion of NMT options and infrastructure support
5. Excessive groundwater extraction	A groundwater recharge rate of only around 50% (per LWUA study) will bring about possible depletion in the medium term.	• Implement both supply and demand-side water management measures, especially those that will improve recharge rates • Prepare groundworks for tapping surface water as source for the long term
6. Pollution	Naga City's water, air and land pollution brought about by increased social and economic activities	• New SLF-WtE at Barangay San Isidro • Optimal waste diversion plan/Waste management system • More effective forest management and urban regreening efforts • Greater coordination among Mt. Isarog PAMB, Metro Naga, PDA • Strict enforcement of forestry and environment laws

		• Consistent monitoring and assessment/evaluation of City-ENRO, CPDO • Air quality monitoring and more aggressive anti-smoke belching campaign by LTO, City ENRO • Progressively shift public transport vehicles from fossil fuel-fed to electric engines • Septage (medium-term) and sewerage projects (long-term) to improve water quality of Naga River
7. Deforestation	Intrusion of native dwellers inside protected areas. These practices are especially pronounced outside Naga. If unchecked, this can compromise the city's water supply.	• Continuing large-scale reforestation • More effective forest management • Greater coordination among Mt. Isarog PAMB, Metro Naga, PDA • Strict enforcement of forestry and environment laws • Consistent monitoring and assessment/evaluation of City-ENRO, CPDO
8. Key public facilities at full capacity	Both the Balatas controlled dumpsite and the public cemetery at Concepcion Pequeña have reached full capacity	• New SLF-WTE at Barangay San Isidro • New public cemetery at Barangay Balatas
9. Incompatible uses	Construction of structures in "flood-prone areas" and environmentally constrained areas like riverbanks and along creek and major waterways. Also includes construction of informal housing within right-of-ways of various utilities.	• Strict enforcement of CLUP 2016-30 • Easement delineation and recovery • Consistent monitoring and assessment/evaluation of City-ENRO, CPDO

• DEVELOPMENT OPPORTUNITIES AND CHALLENGES

Development opportunities

The table below summarizes results of the SWOT analysis of Naga's land use sector.

SWOT Analysis, Naga City's Land Use Sector

STRENGTHS (+)	WEAKNESSES (-)
• Geographical advantage. Strategic central location: history, economy, service, governance center	• Non-responsive land use plan • Urban sprawl • Weak NMT infra and policy

• Topography: Generally flat terrain • Available areas for expansion • Accessible by all modes of transportation	• Limited accessibility through other transportation modes (airport and rail)
OPPORTUNITIES (+)	**THREATS (-)**
• National and sub-national physical framework plans • Metro Naga strategy • QBEx, NADP and Bicol Railways modernization • CLUP 2016-30 and Zoning Ordinance	• Climate and weather-related hazards, especially longer wet days and more intense El Nino episodes • Other geophysical hazards • Possible depletion of groundwater resource within the city

Strengths. The city is endowed with four fundamental strengths.

One is its ***geographical advantage***, owing to a ***strategic central location*** in the Bicol peninsula. Located at the confluence of Bicol and Naga Rivers, Naga over time grew and played a central role in the development of Bicol region itself. Historically, it is one of the four royal cities established in the Philippines by Spain. It is the seat of the dominant Roman Catholic Church, propelled by the Lady of Peñafrancia which is said to be the biggest Marian devotion in Asia. At the same time, it also became its center of economic (trade, commerce, tourism, property development and business process outsourcing) and social (education and health) services. And over the last 25 years, the city distinguished itself as a center of good governance.

Another is its ***topography***. It is blessed with a generally flat terrain that is suitable for most type of development. From the junction of Bicol River up to parts of Barangay Carolina, which accounts for around 60% of the city's territory, the land slopes very gentle below 18%.

Third is ***availability of expansion areas***. Based on the land use accounting exercise conducted, Naga still has around 435 hectares (representing more than 5% of its territory) in net buildable area available for urban expansion, especially for non-agricultural uses. These are located at the fringe of the urban core, especially the peri-urban barangays (San Felipe, Pacol, Cararayan and Balatas) and its southeast corridor (Concepcion Pequeña, Concepcion Grande and Del Rosario).

Lastly, it is ***accessible by all modes of transportation***. Naga is accessible by land transportation, with the Bicol Central Station, biggest of its kind in the region, handling some 1,304 buses that serve intra and interregional destinations. It is a major terminal for the Bicol commuter service as well as the Manila-Bicol run of the Philippine National Railways. By air, it is accessible through the Naga Airport in neighboring capital town of Pili, which is up for upgrading to jet service. And by water, there are new facilities that can handle small private boats and plans of restoring service to the central bay town of Libmanan.

Weaknesses. At the same time, the city must contend with four basic weaknesses.

First is a ***non-responsive land use plan*** that at this point is no longer adequate to guide the city's spatial development, particularly in regard to the four needs identified under the 2000

CLUP: (a) controlled urban growth; (b) increased agricultural income and productivity; (c) additional/enhanced basic services; and (d) sustained growth. An indicator of this limitation are the unplanned developments covering a total of 403 hectares during the last 15 years, which represented 35% of the net urban expansion authorized under the plan. Of the total, 169 hectares covered by 48 approved applications for reclassification or rezoning were approved to cure and legitimize these unplanned developments.

Second, and as a consequence of the first, is the ***urban sprawl*** that these unplanned developments engendered. In spite of the previous CLUP's commitment to compact urban development, it designated areas along the entire stretch of the Naga-Carolina corridor as residential, leapfrogging agricultural areas that served as the city's functional greenbelt. Even the city's own KsK off-site resettlement projects contributed to the rise of residential communities located far away from the residents' usual place of work. For the long run, it penalizes households with higher transportation costs and society with a bigger carbon footprint that contributes to global warming and climate change.

Third, it is weighed down by ***weak non-motorized transportation (NMT) infrastructure and policy support.*** This is to be expected: typical of a city whose historic urban core was heavily influenced by European design, Naga has narrow streets with equally narrow sidewalks that do not promote walking as a transportation option. Worse, like other Philippine cities, it has embraced motorization, typified by the dominance of fossil fuel-fed vehicles, around 90% of which are privately owned. This did not lend well to environment-friendly NMT options like walking and cycling.

Lastly, while accessible to all modes of transport, Naga suffers from constrained services, especially in air and rail that ***limits accessibility***. The short 1.2-km runway of the Naga Airport is only suitable for turboprop aircrafts that can accommodate a maximum of 70 passengers at any given time and do not address the need of passengers that prefer jet service. The planned introduction of night landing capabilities also did not materialize, thereby limiting operations only during the day. The continuing disrepair of the PNR railtracks, especially between Naga and Metro Manila, and its narrow gauge that limits the state firm's ability to offer competitive services, has effectively sidelined rail transport as a viable transportation option.

Opportunities. On the other hand, there are four opportunities that the city can take advantage of within the next 15 years.

First is Naga's identification as a ***regional center in Luzon in the national and regional physical and spatial development framework plans*** formulated by the national government -- one of two in Bicol, and 22 in Luzon island itself. This will enable the city to benefit from key policies adopted under the Philippine National Spatial Strategy (NSS), which defines the country's desired spatial structure based on trends in population, economic activities and services.

Another opportunity arises from the city's ***Metro Naga strategy***, which seeks to promote balanced growth and development in the program area by building on the strengths and complementarities of its member city and towns. For instance, in the draft National Physical Framework Plan 2016-45, Metro Naga has been identified as a tourism hub, anchored on the city's tourism facilities, assets and attractions. The ADB's National Urban Assessment for the Philippines, which will guide development of its strategic policy options and targeted Investments in the urban sector, also identified Metro Naga as one of the 12 metropolitan areas that serve as the country's leading industrial, financial, and technological centers.

The third opportunity, which flows from Naga's identification as a regional center in the Philippine physical framework plan, are three major transportation projects discussed above. These are the ***South Luzon Expressway Toll Road 5 (SLEX-TR5, formerly the Quezon-Bicol Expressway project or QBEx), the Naga Airport Development Project, and the Bicol Railways modernization***. Once realized, these road, air and rail projects will dramatically improve access to the city and address its current weakness.

Finally, there is the opportunity to adopt ***a risk-sensitive and sustainable development-oriented CLUP and Zoning Ordinance*** that can better guide the city's development over the next 10 years. .

Threats. In conjunction with these opportunities, the city must address and mitigate climate and geophysical hazards that can negatively impact the city's development. These fall into two broad categories.

One are the ***climate and weather-related hazards***, specifically extreme typhoons and flooding events, as well as rising temperature that can bring about drought especially during dry season. It is projected that these will bring about longer wet days on one hand, and more intense El Nino spells on the other. Global warming and climate change will also cause more frequent and intense storms and bring about more destructive flooding events.

The other broad category cover ***geophysical hazards***, specifically landslides and seismic risks. Of the two, the former carries the lesser risk considering that it can only affect mountain communities near Mt. Isarog. The latter, on the other hand, poses the bigger risk considering the presence of the Ragay Fault around 70 kms away from Naga, which has triggered a destructive earthquake in 1973. To address them, the city needs to improve its resilience as indicated in the Philippine spatial strategy by focusing on hazard mitigation, vulnerability reduction, exposure minimization, and adaptive capacity enhancement.

Lastly, the city should prepare for a scenario where its groundwater resources will be depleted unless recharge rates are dramatically improved. A LWUA study shows that over the last few years, the annual groundwater recharge is only 50% of the city's current extraction. As such, the city needs to pursue both supply and demand-side water management measures, especially those that will improve recharge rates, and prepare to tap surface water as source for the long term.

Development challenges

Consequently, the City of Naga need to address *five land use-oriented development challenges*, which will be addressed in this planning document.

1. The need to better manage urban growth

More effective and efficient management of urban growth seeks to optimize use of the city's land resource, especially those available for development, as a means of attaining its vision. This requires government to proactively address and progressively reverse the urban sprawl that has characterized Naga's spatial development over the last 15 years. Toward this end, it will be guided by the principles of densification, compaction and smart growth enunciated under

the Philippine national spatial strategy to bring about the “compact city” envisioned under the previous CLUP.

2. The need to improve access to basic services

Leveraging the strategic investments in social services contemplated under the CDP to sustain, if not exceed Naga’s current performance levels, this is ultimately aimed at developing a hierarchy of self-contained communities with sufficient allocation of land for health, education, recreation and protective facilities. This will enable government and its partners to provide community-based urban basic services that will be accessible to city residents.

3. The need to sustain economic development and competitiveness

Building on Naga’s designated role as a regional center in Bicol, this challenge has to do with further growing its local economy in a sustainable manner. This will require government and its partners in the business sector to work together in ensuring Naga’s continuing vitality and competitiveness as a center of health and education; trade and commerce; tourism and leisure; finance and services; and public management and local governance. At the same time, it should also carve its niche in emerging new technologies and green industries. Finally, guided by its development philosophy of attaining “growth with equity,” it needs to leverage economic growth in creating quality jobs that will enable Naga to further reduce poverty, especially its core economic dimension.

4. The need to increase agricultural income and productivity

Completing the troika of poverty reduction-oriented challenges is the need to improve productivity and household income in the city’s agricultural sector, leveraging Naga’s predominant land use. First and foremost, it requires government to protect prime agriculture areas from conversion to non-agricultural use. Side by side, this policy must be complemented by increased investments in inputs, facilities and services that will improve productivity and income by focusing on value chain opportunities from priority commodities identified for Naga and the Bicol region.

5. The need to build livable, safe and resilient communities

Finally, this dual challenge calls for building livable communities on the one hand, and safe and resilient ones on the other. To stimulate the development of more livable communities, government needs to promote mixed-use development in its settlement areas, a departure from the usual zoning enclaves that have characterized traditional Philippine urban planning. Mixed-use development is seen as a more sustainable option, creating community-based economic and social activities and services that minimize home-to-work trips and help lessen its carbon footprint. At the same time, the city must effectively manage the various climate, weather and geophysical hazards that pose a threat to its development as a city, especially in the lives of its people.

• MAJOR DEVELOPMENT GOALS AND OBJECTIVES

To help realize the enhanced “Maogmang Lugar” vision, Naga City shall strive to attain the following goals and objectives for the next 15 years:

1. **Well-managed urban growth.** This aims to develop a livable compact city built around the urban core and a network of mixed-use development connected by sustainable transportation options and supported by quality public infrastructure, services and facilities.

2. **Accessible urban basic services.** This aims to develop a hierarchy of self-contained communities with sufficient allocation of land for health, education, recreation and protective facilities and other social services.

3. **Sustainable, equitable economic development and competitiveness.** This aims to identify, develop and promote new economic growth areas for priority investment. At the same time, it will also strive to create quality jobs that will enable the city to further reduce income poverty, especially in least economically resilient communities

4. **Improved productivity and income in agriculture**. This aims to protect prime agriculture areas from conversion to non-agricultural use; improve agricultural productivity by increasing public and private investments in inputs, facilities and services; and improve household income by focusing on value chain opportunities from priority commodities identified for Naga and the Bicol region.

5. **Livable, safe and resilient city and local communities.** This aims promote mixed-use development in its settlement areas, create community-based economic and social activities and services that minimize home-to-work trips, and help lessen the city's carbon footprint. At the same time, it also seeks to improve Naga's resilience as an urban community by mitigating hazards; reducing local vulnerabilities, minimizing exposure and improving adaptive capacity of local communities.

• DEVELOPMENT THRUSTS AND SPATIAL STRATEGY

To attain these goals, the city's development thrusts and spatial strategy will be anchored on six drivers of growth.

Development Drivers

Identified and organized using the ridge-to-reef framework, these development drivers are:

1. **Commercial development.** For an urban economy where the tertiary sector (built around trade, commerce and services) account for 89% of the total, it is but logical to expect that commercial development will continue to drive Naga's growth over the next 15 years. Trade and commerce represent around half of that number. The city will therefore allocate land that will support the continued growth of this particular sector.

2. **Services.** The entry of big malls (SM and Robinson's) and business process outsourcing companies (IBM and Concentrix); the continued growth of the financial sector, the development of the Bicol Medical Center, coupled with its traditional health and education base, have further solidified the city's standing as the regional center of services and finance. Its designation as one of the Philippines' Next Wave Cities in the BPO industry is expected to bring in more players, especially as the industry diversifies its portfolio out of

Metro Manila in favor of the regions. In serving a regional market, especially the northern Bicol peninsula, there is value in allocating land in the urban core that will support the needs of this fast-growing sector.

3. **Mixed-use development.** Over the last 15 years, property development, especially in the housing sector, accounted for around 70% of new investments in the city. The growth of housing construction, at 3.7% annually, has outstripped even the higher end of the city's population growth. And with a significant Overseas Filipino population and a strong migration and development program, the outlook is bright for this sector. The challenge is to further shift residential development from single houses towards medium- to high-density mixed-use development, built around multi-unit housing in the periphery of the urban core.

4. **Light to medium industry.** The secondary sector, especially manufacturing, did not do well during the last 15 years. Its share in fact contracted from 14% to single-digit levels. But there is logic in maintaining it as a development driver in view of the obvious need to address the structural imbalance in the local economy. The secondary sector after all generates the biggest value-adding and create higher quality jobs, which is a key goal under the plan. Moreover, this is consistent with one of new SDGs that call for the promotion of "inclusive and sustainable industrialization" and significantly raising industry's share of employment and gross domestic product by 2030.

5. **High-value agriculture production and processing.** The same can also be said about Naga's agriculture sector, whose size also contracted, and underperformed spatially, with only 70% of the total area being put to productive use. But in terms of land use, Naga remains a predominantly agricultural city. Thus, for the next 15 years, there is value in promoting agriculture development as a driver of Naga's sustainable development. In addition to the usual cash crops and livestock programs, the city's engagement with the Philippine Rural Development Project (PRDP) has identified pili nut processing, cacao and cutflower as local high-value crops that can be prioritized for development and investments, especially focusing on the value chain gaps and opportunities.

6. **Tourism.** Last but not least, tourism will continue to drive Naga's growth, anchored on its solid performance over the last 15 years on the strength of double-digit growth in tourist arrivals and accommodation facilities. Moreover, the sector will directly benefit if the three major road, rail and air transportation projects identified above are realized, dramatically improving access to the city. Through commercial and property development, various amenities that Naga can offer can only be expected to growth further and diversify. In addition to eco-tourism attractions in the city's east highlands, another promising area would be cultural tourism at the urban core, anchored on the proposed Nueva Caceres Heritage District that leverages Naga's unique legacy as one of the five royal cities established by the Spaniards in the 16th century.

Urban Form and Structural Plan

Preferred urban form. In 2015 and 2016, a two-level mapping exercise participated in by 16 subsector groups for the first round, and the five major sectors for the second round, sought to identify the best location of the city's settlements, production, infrastructure and protection areas; and the different support services and facilities that need to be established to realize the city's "Maogmang Lugar" vision. In defining the city's preferred urban form, the consensus

among the five sectors is Naga's return to a compact city urban form, which the previous CLUP also aspired to but did not accomplish.

Structural plan. Based on the above, as well as the trends population movement as well as the development challenges described above, a structural plan was developed with three outstanding characteristics:

1. **Compact city urban form.** The plan operationalizes a progressive return to the preferred compact city urban form in line with its thrust for a well-managed urban development. This recognizes the fact that Naga's urban core, since the Spanish times up to the present, has been front and center of social, economic and cultural development of the city. Notwithstanding its susceptibility to flooding events due to its location at the confluence of Naga and Bicol Rivers, there is no compelling reason to abandon what has been its dominant urban core, even in the context of climate change. That 11% of the city's population movement over the last 15 years have actually moved into the city is a testament to its continuing vitality and viability.

2. **Tri-nodal spatial development.** A complementary strategy to compaction is tri-nodal spatial development that will be built around the *CBD urban core* as the central primary anchor, supported by two secondary growth nodes: the *Del Rosario gateway district* to the south, and the *Carolina-Pacol agri-industrial quadrangle* to the north. Influenced by the dominant strand of population movement within the city over the last 15 years, this tri-nodal spatial development strategy defines the boundaries of Naga's long-term development within the confines of these three nodes, and recognizes the important role of Naga's peri-urban areas in delivering on the major components of its "Maogmang Lugar" vision.

3. **Radial-circumferential.** Lastly, paying homage to the city's original town plan, urban development will be enabled and accelerated by two new circumferential and one additional radial road that will be established, as proposed under the 2016-30 City Road Network Development Plan (CRNDP) adopted by the Sangguniang Panlungsod in 2016. They form part of the plan's development strategy to invest on strategic new road projects that will accelerate mixed-use development by promoting greater connectivity between the city center and key growth nodes, and in the process enable critical private investments in new road networks.

• PROPOSED LAND USES AND ZONING ORDINANCE

With a Net Buildable Area of 786.3 hectares -- equivalent to around 9% of the city's total land area that can supply its development needs – the table below presents the proposed land use allocation scheme for Naga City over the next 10 years. In all, it will require a net urban expansion of 715 hectares over the 2000 CLUP allocation scheme. This is equivalent to a net expansion of 8% which is well within the 9% net buildable area available for the city.

Proposed Land Use, Naga City, 2016-30

CLASSIFICATION	Proposed Land Use	2016 Actual Land Use	2000 Land Use Plan	Net Urban Expansion Requirement For the Planning Period

	AREA	%	AREA	%	AREA	%	Vs 2016 Actual Use	Vs 2000 CLUP
Residential	2,155.48	25.5	1,622.93	19.2	1,886.28	22.3	532.55	269.20
Commercial	637.48	7.5	329.8	3.9	340.72	4.0	307.68	296.76
Agricultural	4,034.54	47.8	3,906.64	46.2	3,553.23	42.1		
Industrial	194.62	2.3	209.93	2.5	214	2.5	(15.31)	(19.38)
Institutional	220.58	2.6	182.47	2.2	182.47	2.2	38.11	38.11
Forest Reserves	647.99	7.7	611.14	7.2	611.14	7.2	36.85	36.85
Parks	45.42	0.5	9.95	0.1	9.95	0.1	35.47	35.47
Transportation Utilities	106.37	1.3	24.45	0.3	24.45	0.3	81.92	81.92
Dumpsite	10.00	0.1	5.89	0.1	5.89	0.1	4.11	4.11
Cemeteries	55.56	0.7	33.95	0.4	33.95	0.4	21.61	21.61
Water Bodies	43.72	0.5	43.72	0.5	43.72	0.5		
Agro-industrial	191.47	2.3	271.47	3.2	346.43	4.1	24.77	(50.19)
Agro-ecotourism			1,195.66	14.2	1,195.66	14.2		
TOTAL	**8,448.00**	**100.0**	**8,448.00**	**100.0**	**8,448.00**	**100.0**	**1,067.76**	**433.28**

Proposed land use. In terms of specific uses, it will have the following allocations:

- **Residential.** A total of 2,156 hectares will be allocated for residential use, representing 26% of its land area and a 3 percentage point increase over the 2000 level. This is 533 hectares more than the 2016 actual use, but only 269 hectares higher than the 2000 CLUP allocation. The bulk of new lands that will be released for residential use will be located in areas ringing the urban core, in line with the compact city development strategy described above.

  The allocation also supports the goal of the city's Local Shelter Plan, 2018-32, which aims to develop as much as 225 hectares (roughly 11% of the total residential allocation) of new land for socialized housing over the 15-year planning period to address the city's housing backlog.

- **Commercial.** A total of 638 hectares will be allocated for commercial use, representing close to 8% of Naga's total land area, which translates to a 3.5 percentage point increase over the 2000 level. This is equivalent to a 297 hectare net increase over the allocation in the previous planning document, and 308 hectares in all if we consider the 2016 actual land use. Located within the urban core, the bulk of the Almeda Bypass Highway and the southern CBD 2 in Tabuco, areas along segments of the Circumferential Road 2 (C-2) in San Felipe and Balatas (comprising the proposed New Balatas Business District), as well as key intersections of the Naga-Carolina Road, these additional areas should be more than enough to meet requirements of the city's new commercial, services and tourism development, which are expected to further drive the city's economic growth.

- **Agricultural.** A total of 4,035 hectares will comprise the city's agricultural resource base, representing 48% of the total. This is brought about by a net increase of 481 hectares over the 2000 level, or an six percentage point improvement over the sector's 42% share in the previous plan. This is mainly due to the elimination of agri-ecotourism as a separate land use category. This allocation gives substance to the thrust to protect the city's prime agricultural areas, especially in the upland barangays, provide clarity in terms of policy, and address underperformance due to idling of lands for speculative purposes.

- **Industrial.** A total of 195 hectares is allocated for industrial use, representing 2.3% of the total, a reduction of around 19 hectares compared to the 2000 level. This will be carried out by compensating for the partial change of use in the original Pacol ecozone, which was

developed into a high-end mixed-use housing project (Haciendas de Naga). To promote green growth anchored on light to medium industrial development, this allocation under the plan supports the establishment of an industrial estate in Pacol and San Isidro.

- **Agri-industrial.** Paralleling the slight reduction in the industrial use allocation, agro-industrial use will be reduced. Under this plan, a total of 296 hectares will be allocated, representing 3.5% of the total. This is 50 hectares less than the 2000 level, but should be more than enough as the land allocations were largely unused during the last 15 years.

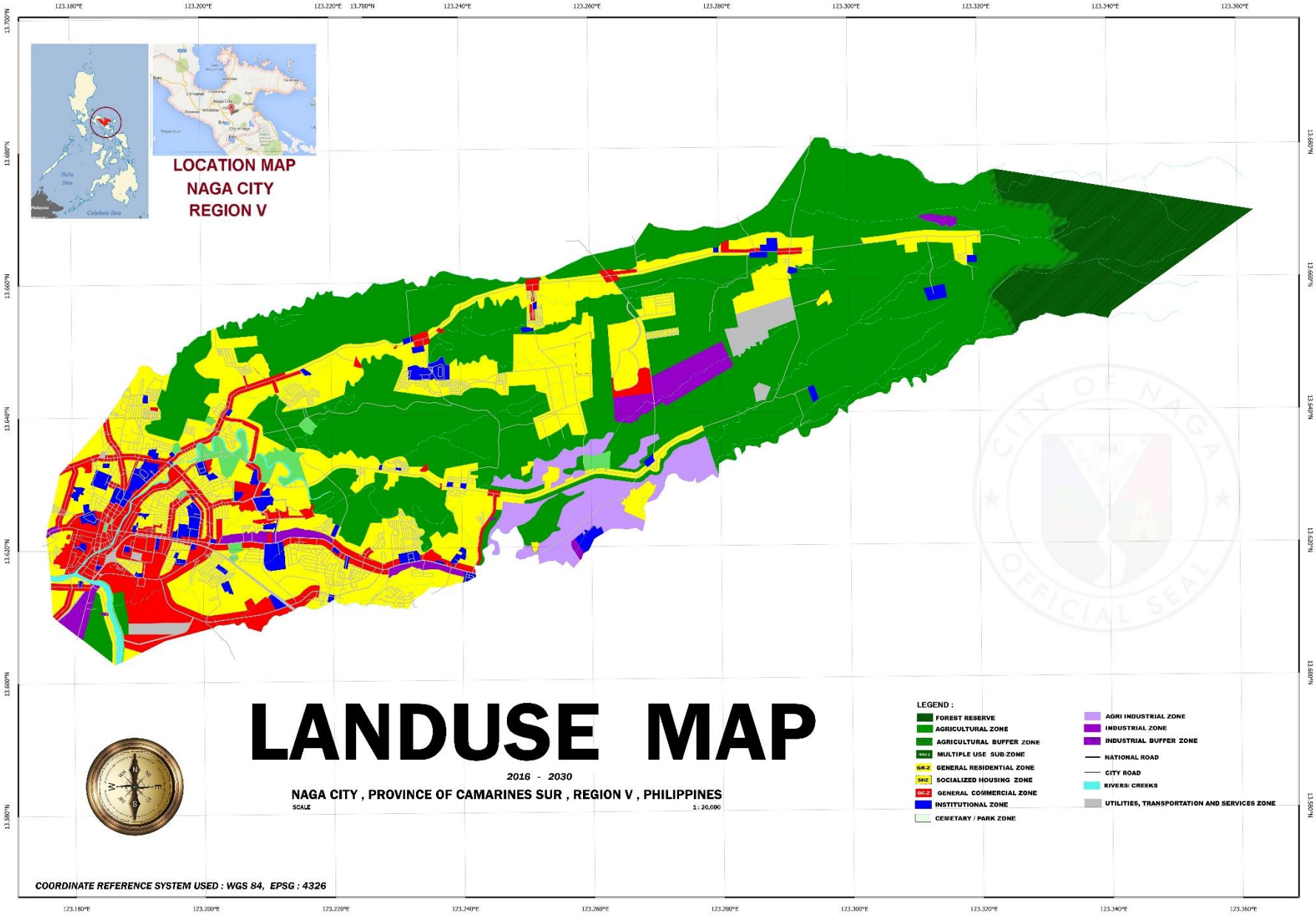
- **Institutional.** A total of 221 hectares will be allocated for institutional use, representing 2.6% of the total, and 38 hectares higher than the 2000 level. The additional allotment is intended to cover land requirement for basic urban services, especially in the growth centers and new settlement areas that will be establish to house the city's additional population.

- **Forest reserves.** On top of the 611 hectares or 7.2% of the total protected area covering the Mt. Isarog National Park, a 100-meter deep forest buffer zone will be provided that adds around 37 hectares, bringing the city's Protection Areas to 7.7% of the total.

- **Parks and water bodies.** These land uses, with an aggregate allocation of 89 hectares, will see a 36-hectare increase, mainly due to three new proposed parks: (1) a 10-hectare new park located at the intersection of the proposed C-2 and Balatas Road in Cararayan; (2) the conversion of the Balatas Dumpsite into a 3.5-hectare green enclave; and (3) a 3.5-hectare river park in Tabuco facing the Bicol River.

- **Other uses.** Allocations for transportation utilities, dumpsite and cemeteries round up the other land uses, and will see an aggregate allocation of 172 hectares, 108 more than the 2000 levels, and equivalent to 2% of the total land area.

- **Planned unit developments (PUDs).** Finally, in addition to the above land uses, two planned unit developments will be promoted. These are mixed-use developments located in Barangays Triangulo (a 90-hectare riverfront development facing Bicol River) and Carolina (an 85-hectare development along the Carolina-San Isidro Road). The combined 175 hectares of PUDs under the plan do not represent a separate land use but will be deducted from the allocations described above.



The 2021-30 Land Use Map of Naga City.

Zoning ordinance. To implement these land uses, the revised draft Zoning Ordinance is proposing the adoption of 18 base zones (from 15 in the 2000 Zoning Ordinance), 9 base sub-zones and 4 overlay zones.

The six new base zones are:

- **Socialized Housing Zone (SH-Z)**, for socialized housing projects
- **Commercial-3 Zone (C3-Z)**, which replaces Metropolitan/Arcaded (C2A) under the 2000 ordinance
- **Industrial-2 Zone (I2-Z)**, for medium intensity manufacturing or production industries
- **Special Institutional Zone (SI-Z)**, for particular types of institutional establishments like welfare homes and orphanages
- **Buffer/Greenbelt Zone (B/GZ)**, which covers yards, parks or open spaces intended to separate incompatible elements, control pollution/ nuisance, and identify and define development areas or zones where no permanent structures are allowed, and
- **Utilities, Transportation and Services Zone (UTS-Z)**, to cover a range of utilitarian/ functional uses or occupancies for low to high-intensity community support functions.

The nine new base sub-zones are:

- **National Park Sub-Zone (NP-SZ)**, **NIPAS Multiple Use Sub-Zone (NMU-SZ)**, and **Forest Buffer Sub-Zone (FB-SZ)** under Forest Zone (FZ)
- **Protection Agricultural Sub-Zone (PTA-SZ)** and **Production Agricultural Sub-Zone (PDA-SZ)** under Agricultural Zone (AGZ)
- **Basic R-2 Sub-Zone (BR2-SZ)** and **Maximum R-2 Sub-Zone (MR2-SZ)** under Residential-2 Zone (R2-Z), and
- **Basic R-3 Sub-Zone (BR3-SZ)** and **Maximum R-3 Sub-Zone (MR3-SZ)** under Residential-3 Zone (R3-Z).

The four new overlay zones, which provide an additional set of regulations deemed necessary to achieve objectives for the overlay zone, are:

- **Flood Overlay Zone (FLD-OZ),** which covers areas identified as prone to flooding and where specific regulations are provided in order to minimize its potential negative effect to developments.
- **Landslide Overlay Zone (LSD-OZ),** which covers areas identified as highly susceptible to landslides and where specific regulations are provided in order to minimize its potential negative effect to developments.
- **Ecotourism Overlay Zone (ETM-OZ), for** areas intended for ecotourism uses, and
- **Heritage Overlay Zone (HTG-OZ),** for the area at CBD 1 which refers to historical areas and settings that are culturally significant to the country, as declared by the National Historical Commission of the Philippines.

Implementation of the Plan will be carried by the Zoning Ordinance out at two levels. Internally, it rests on three key agencies of the city government under an institutional arrangement carried over from the previous CLUP, but with substantially clearer and stronger authority lines and mandates. Externally, the city government is looking at more functional and strategic partnerships with other government agencies and stakeholders, particularly at the barangay level.

• PROPOSED MAJOR SPATIAL PROGRAMS AND PROJECTS

To support the Plan, major spatial programs and projects are proposed for implementation, with a total funding requirement of around P 4.6 billion. They fall under three major categories:

- the **city road network development projects** that will require around 1.5 billion,
- **other sectoral projects** that will require around P1.7 billion; and
- **climate change adaptation and mitigation projects** that will require around P1.5 billion.

Financing for the city road network development will come from six sources: (1) local funds; (2) national funds; (3) road conversion from local to national; (4) borrowings; (5) landowners' equity; and (6) value capture mechanisms. Road conversions aim to maintain the national government's share in the city road network at 19% of the total. Landowners' equity calls on government to aggressively explore securing landowners' equity for free or at a steep discount, especially for RROWs of the new road projects. Value capture, on the other hand, internalizes the positive externalities of public investments, allowing public agencies to tax property owners who directly benefit from their investments.

On the other hand, on top of the above, financing for sectoral and the climate change adaptation projects will also include adaptation funds by climate agencies of the national government, like the People Survival Fund (PSF) which are expected to put up 32% for the latter. The balance will come from international development agencies as well as private investors for projects that can be funded through public-private partnerships (PPP).